

FAIR VALUE™

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ACTIVE / PASSIVE APPRECIATION: VOODOO OR SCIENCE?

By: George B. Hawkins, ASA, CFA

Introduction. There is no singular equitable distribution issue that attracts more suspicion among family law attorneys than a business appraiser's opinion of the active and passive components of the change in the value of a business or professional practice. Many attorneys and judges believe this opinion is nothing more than valuation voodoo – and in many cases, they are right. It is hard to think of an area in business valuation that is more subject to quackery and outright advocacy than the active/passive analysis.

**George Hawkins**

It does not have to be this way, however. In fact, a competent business appraiser can and should use sound logic and statistical analysis to arrive at a more reasoned and unbiased conclusion as to the change in value due to active and passive forces. I want to be clear here: the final answer cannot be determined with precision by an objective formula. As with other business valuation issues, judgment, subjectivity and other qualitative factors still come into play in the active/passive analysis. Nonetheless, statistical analysis, used correctly, can provide powerful information to the appraiser in arriving at a more reasoned, logical and supported conclusion as to the determination of the active and passive components of a change in value. This article will explain a powerful analytical tool available to help determine the active and passive components, provide examples of complicating factors in dealing with the

active/passive issue, and summarize some of the particular active/passive issues in North Carolina case law.

For simplicity, this article refers to appreciation on separate property brought by a spouse to the marriage, although it is also possible that the interest in a business can be received by inheritance or gifts during the marriage and therefore be separate property.

Active Versus Passive Explained

The necessity of determining the active and passive components of a change in a company's value typically arises in two contexts that are best illustrated by hypotheticals:

1. Date of Marriage to Date of Separation.

Husband owns Company worth \$1 million at the time he gets married. Twenty years later, he separates from Wife. Company is worth \$10 million at the date of separation. The total increase in value of the Company is \$9 million. The portion of the increase that is due to the **active** efforts of Husband is considered **marital** property and is subject to division between Husband and Wife. The portion of the increase that is due to **passive** forces is considered **separate** property and remains the property of the Husband.

The rationale behind this policy is that the non-business spouse (here, the Wife) supported her Husband and family during the marriage, allowing the Husband's active efforts to increase the value of the Company. As such, the Wife should participate in that portion of the appreciation of the Company's value that is due to Husband's active efforts. This policy is not statutory in North Carolina but is established by case law, notably

ACTIVE/PASSIVE (continued)

Wade v. Wade, 72 N.C. App. 372, 325 S.E.2d 260, disc. review denied, 313 N.C. 612, 330 S.E.2d 616 (1985).

One upshot of this policy is that value that was previously the separate property of one spouse prior to the marriage can become marital property during the marriage and therefore subject to division.

Similarly, the passive component of appreciation of property that is separate should remain the separate property of the owner. Here, the passive component of the increase in the value of the Company occurred without any active effort of the Husband or through any marital support by the Wife. As such, this portion of the appreciation of value remains the separate property of the Husband.

2. Date of Separation to Date of Distribution (or Trial). Husband continues to work at Company following his separation from Wife. At the Date of Distribution, the Company is worth \$12 million. In contrast to the first hypothetical, the components of value in this instance are reversed. The portion of the increase that is due to the **active** efforts of Husband is considered **separate** property of the Husband. The portion of the increase in value that is due to **passive** forces is considered **marital** property and is subject to division between Husband and Wife.

Here, the rules are opposite as compared to the appreciation between the date of marriage and date of separation. The component of increased value due to the active efforts of Husband is his separate property as Wife no longer provides marital and family support following the date of separation. As such, the Husband retains all of this increase in value. Any increase in Company value that is due to passive forces, however, is considered marital property as Company is effectively considered to be a marital asset at the time of separation. Because neither the Husband nor the Wife created (or supported the creation of) that increase in value that is due to passive forces, this portion of the increase is shared by both, i.e., it is marital.

This is a very generalized illustration of the impact of active and passive components of the increase in company value. There are many complex legal issues involving this subject. Banister Financial is not a law firm and is not qualified to provide legal advice or a legal opinion of any kind. Readers of this article should consult competent legal counsel for an interpretation of statutory and case law as it pertains to a particular matter.

In the above hypothetical, the Company's value increased by \$9 million between the date of marriage and date of separation and by \$3 million between the date of separation and date of distribution. Aside from any potential disagreement on the value of the Company itself, an even greater battleground in equitable distribution may arise with the dispute between the active and passive components of an increase in value. At times this can be comical with (for example) an attorney for the Husband in the above hypothetical arguing that the increase in Company value between the date of marriage and date of separation being due entirely to passive forces (and thus remaining the separate property of the Husband). Then, between the date of separation and date of distribution, the increase in Company value suddenly (and magically) becomes entirely due to the active efforts of the Husband (thus remaining his separate property).

Examples of Active Versus Passive Changes in Value

Before we go any further, it is helpful to illustrate active and passive changes in value in the extreme. This will help establish the boundaries for the middle ground where the active/passive battle occurs.

1. Purely Passive. Husband comes to the marriage owning undeveloped raw land worth \$1 million. Ten years later at separation the property is now worth \$5 million. During the interim, Husband has done absolutely nothing to change the character of the property. Husband has not had the property re-zoned, installed any improvements, or developed the property in any way. As a result, none of the \$4 million increase in the property's value since the date of marriage is due to the active efforts of the Husband. Consequently, the property remains the separate property of the Husband, with the Wife not sharing in any of the appreciated value.

2. Purely Active. Husband comes to the marriage owning and operating his own practice as a solo dentist. Regardless of the amount of demand for dental services, the revenues and earnings of the practice are totally dependent on the active decision made by Husband to choose to treat patients and personally perform the services demanded. Even if multiple apartment buildings open on every side of the dentist (significantly increasing his supply of patients and their demand for dental services), the fact remains that Husband must make the active decision to personally see and treat every one of these additional patients. It is also the Husband's decision to take

ACTIVE/PASSIVE (continued)

Fridays off for golf each week and realize only 80% of the potential revenues and profit from the Practice.

But what about the hygienists in Husband's dental practice? Surely the patients they see and the resultant revenues are substantial and have an impact on practice results and value. Not so. According to the North Carolina State Board of Dental Examiners, by North Carolina law a dentist must be in the office anytime a patient is seen by anyone in the practice and the practitioner is ultimately responsible for the patient's care and for supervision of the assistant. As a result, demand for a particular practice may be significant, however, the realization of this demand is limited by how many patients the dentist can effectively see each day.

What About a *Decline* in Business Value?

As was painfully realized in recent years, values do not always go up and the roles may be reversed when it comes to arguments about the active and passive components of any *decline* in value. This issue frequently arises during the period between separation and date of trial. The key question is: was the decline in value due to the active efforts of the spouse (i.e., purposeful destruction of the company) or was it due to passive force (i.e., a bad economy)? Remembering that the active increase in value between the date of separation and date of distribution is the separate property of the Husband and the passive increase in value between the date of separation and date of distribution is marital property to be divided, the arguments typically made are as follows:

Husband: This economy is terrible and is killing my business. I am working harder than I ever have before but my revenues, profits, and value keep going down. There is nothing I can do. The decline in value is due to passive forces, is marital property, and my ex-Wife must share in this decline.

Wife: My ex-Husband is purposefully running the business into the ground (or is plundering the business to feed a drug/gambling habit). Once this ED matter is over, he will flip the switch and start building the company back up again. This decline in value is due to his active efforts to suppress the company's value. This is his separate property and the decline in value must be credited entirely to ex-Husband via a reduction of his marital share.

In wading through these arguments, the business appraiser must remain unbiased and should be alert that the parties involved may be painting a lopsided picture or opinion to influence the outcome. This requires the business appraiser to appropriately compare the information and opinions presented with objective and historical data to reach a logical and supportable opinion of value.

To summarize (with respect to North Carolina as an example):

Marriage (or Date of Acquisition) to Separation:

- The portion of the change in the value of an asset that is due to the active efforts of the spouse is **marital property**.
- The portion of the change in the value of an asset that is due to passive forces is **separate property**.

Separation to Division (Trial):

- The portion of the change in the value of an asset that is due to the active efforts of the spouse is **separate property**.
- The portion of the change in the value of an asset that is due to passive forces is **marital property**.

Romulus and the Burden of Proof

As noted earlier in this article, we used a dental practice as an example of appreciation in value that is due purely to active forces. In *Romulus v. Romulus, No. COA10-1453, 2011*, the North Carolina Court of Appeals concluded just the opposite: the appreciation in value between the date of separation and date of trial was due purely to passive forces and thus was divisible marital property. The decision in *Romulus* hinges on the presumption of appreciated value as well as the burden of proof. The presumption is that any increase in value between the date of separation and date of trial is passive and therefore marital property subject to division. The burden of proof is on the defendant to rebut this presumption. In upholding the trial court, *Romulus* stated that the defendant/Husband had the burden of proof to rebut the presumption that the dental practice was divisible property but had not done so

ACTIVE/PASSIVE (continued)

based on the trial court evidence.

Romulus stated the trial court's reasoning in reaching its conclusion that the change in value from separation to trial was passive:

As to the change in value of John M. Romulus, PA after the separation of the parties, the Court finds that such increase was passive and is thus divisible property. In support of this conclusion, the Court finds that Dr. Romulus' efforts to grow the business were essentially unchanged from DOS [Date of Separation] until DOT [Date of Trial]. The Defendant did not invest substantially more time working at his practice than on the DOS, and in fact continued to work "dentist's hours" which included taking at least one weekday afternoon out of the office or otherwise away from work. There was no evidence of other substantial efforts to grow the business by Dr. Romulus by increasing advertising, adding new services, new patient recruitment, patient retention efforts or the like.

Even though Dr. Romulus undoubtedly actively worked in the business by going to the office and doing dentistry, that does not lead to the conclusion that the increase in value of his practice is active and his separate property. Take the example of a shopkeeper who runs a corner store. He works from Monday to Friday, 9am to 5pm. A 20 story residential complex is completed across the street and his receipts increase greatly. Contrast that situation with a similar shopkeeper who expands his hours to nights and weekends, increases advertising to capture new customers, and establishes a website offering online shopping and delivery. This shopkeeper sees a similar increase in receipts, without the benefit of the new apartment building across the street. Although both shopkeepers were actively involved in the business of running the store, the increase in the value of the business itself is passive in the first case and active in the other.

Dr. Romulus has not presented sufficient evidence to rebut the presumption that the increase in value of marital property post separation is divisible property, and thus such increase will be classified as divisible property and distributed as set out in this order.

Unfortunately, the rationale of the above illustration above is flawed. As noted earlier, a dentist's work is totally patient-centric and involves hands-on, daily treatment (and/or the direct supervision of others, such as hygienists, providing such treatment). For a dentist to realize increased revenues, profits (and value), he has to actively increase his participation in the practice.

By contrast, the shopkeeper in the above hypothetical could easily hire new employees to handle the increased volume. In fact, the shopkeeper could outsource 100% of his workforce so that he did not have to work at all. Without actively increasing his time or involvement in the business (other than the active management decision to hire the new employees), the shopkeeper could benefit from the passive force of the impact of the new residential complex on his business. A solo dentist such as Dr. Romulus does not have this option available to him.

We do not have the full record in *Romulus* and therefore cannot comment on this situation with complete clarity. There are any number of factors that could be responsible for an change in value between separation and trial with *Romulus* (or any practice or business), such as:

1. Working harder (active). If the increase in value is due to the dentist working more efficiently or harder when he was there, this is an active effort on behalf of the dentist (and thus his separate property between the date of separation and date of trial).

2. Price increases (active or passive, depends). If the increase in value is due to increased prices for services, this is an active decision made by the dentist to charge them (and thus his separate property between the date of separation and date of trial). However, the fact that prices can be increased is a market (or passive) force, so there may be both active and passive elements present.

3. Change in profits (active). If the dentist is working the same number of hours but his profitability increases due to realized efficiencies (cutting staff, eliminating waste, etc.), this is the result of active efforts by the dentist (and thus his separate property between the date of separation and date of trial).

4. Change in profits (passive). Now suppose the dentist is still working the same number of hours but his profitability declines due to decreases in reimbursement rates from governmental agencies as well as insurance companies. This change is due

ACTIVE/PASSIVE (continued)

entirely to passive forces (and thus is marital property subject to division).

5. Change in capitalization rates (active or passive- depends). Assume the practice's profits are the same at the date of separation and date of trial. If the capitalization rate at the date of trial is lower than the capitalization rate at the date of separation, the value will be higher at the date of trial. This increase in value is due entirely to the different (lower) capitalization rate at the date of trial. This change is due entirely to passive forces (and thus is marital property subject to division). Note- the development of a capitalization rate might also include a specific company risk factor adjustment. It is possible that some of this change between two dates might be due to active efforts that led to making the business more or less risky and therefore affecting the capitalization rate and resulting values at the different dates.

6. Change in valuation multiples (active or passive- depends). Assume the practice's revenues and profits are the same at the dates of separation and trial. If valuation multiples have changed between the two dates due to what buyers in general are willing to pay, the application of those different multiples to the same revenues and/or profits will result in different values at the dates of separation and trial. This change is due entirely to passive forces (and thus is marital property subject to division). Note- the multiple paid for the specific business might be higher or lower due to its unique characteristics at the different dates. It is possible that some of this change between the two dates might be due to active efforts that led to making the specific business worth a higher or lower multiple and resulting values at the different dates.

The above factors are illustrative only as we do not know all the facts in *Romulus*. There could have been other issues, factors or valuation methodologies that led to the change in value between the two dates that only a full review of the trial court record might uncover. The above factors, however, provide examples of some of the issues that might arise in an active/passive analysis. With different facts, though, very different conclusions might be reached on the above examples.

Romulus stated that it could only rule on the evidence presented at trial by the defendant/Husband to rebut the presumption that the change in value was not otherwise divisible property. This leaves open the possibility that with different evidence at the trial court level the Court of Appeals might have ruled differently.

The Active/Passive Analysis: Start with Passive Forces

We now turn to an actual example of an active/passive analysis. The first step, obviously, is to ensure that business valuations have been competently prepared at all relevant valuation dates (marriage, separation and distribution/trial). By doing these valuations, the valuator should now have a thorough understanding of the various internal and external forces that affect the business or professional practice. In starting the active/passive analysis from this point, the suggested approach is to first analyze any passive forces that impacted the change in value. Following this analysis, investigation into any active forces can then be conducted.

It is preferable to begin the analysis with passive forces since many of these forces are easily documented and measurable and can be readily compared to a company's historical performance to determine any correlation. Passive forces such as interest rates, consumer demand, housing starts, population growth, etc. can have a major impact on a company's ability to sell its product or service. For illustrative purposes, we will use a manufacturer of residential windows and doors that sells to building material supply dealers. We will compare this company's results to housing starts as a potential indicator of a passive economic force on the value of the company. We assume that the Husband brought this company to the marriage and the marriage lasted 18 years.

The foundation of this analysis is based on common sense. If housing starts are strong, a manufacturer of residential windows and doors should benefit. If housing starts are weak or falling, a manufacturer of residential windows and doors should suffer. In both of these scenarios, it may be the case that any increase or decrease in company value is largely impacted by this passive force of housing starts (over which company management has no control). Following this, we will then look at the impact of active forces on the change in company value.

There could be many external forces that impact the change in the value of a business. Often, however, only a few forces have a dominant impact on company value. The goal of the passive analysis is not necessarily to quantify the impact of all potential passive forces on the change in value. It is the goal of passive analysis to find those passive forces (for which quantifiable data is available) that have a major impact on value. For example, competition is a passive force faced by virtually all companies. Competition, however, can be very difficult, if not impossible, to quantify and

ACTIVE/PASSIVE (continued)

thus utilize as having an impact on the change in company value.

Passive Force: Housing Starts

In the active/passive analysis of the door and window manufacturer, it is believed that the level of new single-family residential housing starts is a major factor determining how well or poorly this company does in a particular year. The overall level of residential new home construction is influenced by changes in interest rates, the overall economy, consumer confidence, population growth, the rate of new household formations, and other factors. Neither the husband nor the company have any control over the level of housing starts. As such, housing starts are a purely passive force on the Company. The analysis begins with a hypothesis and various issues as follows:

Hypothesis: The level of housing starts impacts how well or poorly the company does over time. The company's performance over time has a direct impact on the company's value.

Issues:

1. Is the relationship between housing starts and the company's performance actually present?
2. If present, how strong is this relationship?
3. What is the actual quantification of the relationship between housing starts and their impact on the company's results?
4. Does this relationship make sense?

Regression Analysis

If there are answers to the above questions, they may be found through regression analysis. While clients, attorneys and other readers of this article do not need to know how to perform regression analysis, it is critical that they understand the basic principles behind this analysis and the information it can provide.

Regression discerns relationships between two or more variables. The variable to be predicted is the dependent variable (denoted as "y" in regression analysis) The amount of the dependent variable depends on one or more independent variables (denoted "x" in regression analysis). In our example, we will address only one independent variable (housing starts) and one dependent variable (annual company revenues).

The Hypothesis: Housing Starts Impact Company Revenues

The window and door products manufactured by our company are ultimately used by single-family homebuilders in the construction of new residential housing. Therefore, the initial working hypothesis of this analysis is that housing trends influence the company's revenues, profits and value. While we are comparing housing starts to the company's revenues, we are also assuming that the company's revenues directly impact the company's profits which directly impact the company's value. In other words, higher revenues translate to higher profits, which translate to greater company value. Conversely, lower revenues translate to lower profits, which in turn leads to lower company value. For brevity's sake, the regression analysis in this article will compare housing starts to company revenues and not to company profits, however, assume that the same relationship exists between housing starts and company profits.

In order to objectively test this hypothesis, it is necessary to use regression analysis. The goal is to determine if annual residential housing starts (independent variable "x") is a statistically significant predictor of the company's annual revenues (dependent variable "y") and, if so, the direction and nature of that relationship. The following sections outline the results of this analysis.

Relationship of Housing Starts and Company Revenues

The input data used in the regression analysis is shown in **Table A**. The data measures the impact of residential housing starts in a given year (independent variable "x") on the company's annual revenues (dependent variable "y").

Year	Housing Starts (x)	Revenues (\$000s)(y)
1	1,150,000	\$12,100
2	1,081,000	\$11,800
3	1,003,000	\$11,500
4	895,000	\$9,500
5	840,400	\$9,175
6	1,030,100	\$11,000
7	1,125,600	\$11,900
8	1,450,000	\$16,000
9	1,820,000	\$18,850
10	1,161,000	\$12,300
11	1,133,600	\$11,700
12	1,271,000	\$13,000
13	1,350,000	\$14,600
14	1,750,000	\$17,300
15	1,900,000	\$20,000
16	1,300,000	\$14,400
17	900,000	\$9,750
18	750,000	\$7,500

ACTIVE/PASSIVE (continued)

As shown in **Table A**, both housing starts and the company's annual revenues increased and decreased over the 18-year marriage. Regression analysis answers the question as to whether these increases and decreases are correlated in any way. More specifically, since the company's revenues have no impact on housing starts, the regression analysis answers the question of whether housing starts had any impact on the level of company revenues and, if so, to what extent?

Performing a linear regression of the data in **Table A**, with y (annual company revenues) as the dependent variable and x (housing starts) as the independent (and here passive) variable yields the results in **Table B**.

R Square	0.98126
Observations	18
P-value	0.00000000000002998
	Coefficients
Intercept (a)	646.94
Housing Starts (x)	0.0101

Several preliminary conclusions can be drawn from the **Table B**:

1. Strong Relationship. There is a strong relationship of company revenues to housing starts with 98.1% of variations in the company's revenues explained by changes in national homebuilding activity. Given that the relationship between the two variables is statistically significant (see below), the R squared statistic (called the coefficient of determination) indicates that a significant 98.1% of the variations observed in the company's annual revenues is explained by changes in housing starts. The change in housing starts is a passive force over which the company has no control.

2. Statistical Significance. The relationship between the company's annual revenues and housing starts is statistically significant. A p-value less than 0.02 indicates that there is a 98% confidence that the results seen would not occur randomly by chance. Said another way, a p-value less than 0.02 indicates that a statistically significant relationship is present. The p-value is a critical but often overlooked aspect of regression analysis. It is incorrect to stop at the R-square number and, based on its magnitude, cite either a significant

relationship, weak relationship, or no relationship between the independent and dependent variables. If the p-value test is not met (i.e., a figure less than 0.02), the R-square figure is meaningless as it has no statistical significance and the relationship could be occurring randomly by chance. If the p-value test is not met there is no point in proceeding further.

3. Positive Relationship. The slope coefficient of 0.0101 is a positive figure and indicates a positive relationship between changes in housing starts and changes in the company's revenues. This is an expected result as it is logical that increasing housing starts would increase the demand for the company's products (thus increasing the company's revenues) and a decline in housing starts would result in a decline for the company's products (and revenues).

4. Common Sense. The relationship between housing starts and the company's revenues makes sense. This is a critical factor as statistical relationships do not necessarily mean a causal relationship is present. There must be a valid reason or reasons why such a causal relationship would be expected to exist. The strong relationship in this case makes complete sense as housing starts directly affect the demand for products used to build the houses under construction (such as the windows and doors manufactured by the company).

Based on the above factors, a regression formula for predicting the company's annual revenues in a given year (based on the expected level of housing starts) would be as follows:

$$y = a + bx$$

$$y = 646.94 + 0.0101 x$$

where:

$y =$ Co. revenues (in \$000s)

$x =$ annual housing starts

$a =$ slope intercept

In summary, the above regression analysis shows that the company's revenues over time are materially impacted by trends in national housing starts. Furthermore, this passive force explains a significant percentage (98.1%) of the variation in the company's revenues and does so with a statistical validity within a 98% level of confidence. Since there is a close relationship of revenues and earnings to housing starts and earnings heavily impact the value of a business, this suggests that housing starts are a major passive force shaping the company's results and, therefore, its change in value over time.

ACTIVE/PASSIVE (continued)

Limitations of the Analysis

It is highly tempting to jump to the next logical step and conclude that 98.1% of the change in the company's value over the 18-year period is due to the passive force of housing starts. This, however, would be a reckless decision that ignores a number of important subjective factors that must be considered in order to reach a realistic conclusion of the active versus passive portion of the change in value.

It is clear from the above analysis that housing starts are a powerful passive force on the company. Management has no control over this factor, yet it has a significant impact on the company's revenues, earnings, and value in any given year. However, it is also true that the company does not run on cruise control. The company must be managed to achieve its results, compete effectively, develop new products and otherwise make the right decisions to benefit from national changes in demand, regardless of whether housing starts are up or down. A red hot housing market does not guarantee success and an increasing value for the company. Similarly, in a poor housing market, management must take active measures to preserve market share, make various operating adjustments and reductions, and position the company to survive the downturn.

Examples of this abound in the real world. Demand for televisions has increased steadily for years, however, the Zeniths and RCAs that were ubiquitous in my youth have been replaced by Samsung, LG, and others. A rising TV market did not guarantee success for the old American TV manufacturers as active decisions by both domestic and foreign manufacturers dictated the landscape observed today.

Therefore, despite what regression analysis shows about the passive force of housing starts, it may not be reasonable to then assume that 98.1% of the change in the value of the company can be explained by that passive force and is therefore the separate property of the husband. The final analysis must reflect the very strong passive element, but also recognize an active element that means the passive component may be some figure less than 98.1%. The ultimate determination of the respective active and passive components involves further analysis and inquiry by the business appraiser. By considering both active and passive elements, the business appraiser can arrive at a reasonable and supported conclusion. The unavoidable subjectivity of this analysis and the existence of active forces

potentially greater than 1.9% (i.e., 100% less 98.1%) does not negate the compelling results shown in the above regression analysis in its identification of a very strong external passive force on the company's revenues (and, by extension, its value). It may also be necessary for the business appraiser to determine the allocation of active efforts of various individuals at the company in addition to the active efforts by the husband.

Regression Analysis is Not Always Available

Unfortunately, regression analysis and other statistical techniques are not always useful in a particular valuation matter. Sometimes there is no clear, dominant external factor or factors that can be identified as impacting company performance. Also, even if certain factors can be identified, it may be there is no reliable objective data to allow any possible relationship to be examined and quantified. For example, a company might operate in a very unique and small niche industry where there is no tracking of industry data by trade associations or governmental agencies.

Furthermore, if the life span of the company is very short or if other factors complicate historical results, it might be impossible to reliably use statistical tools. For example, consider a hypothetical franchisee of a major national restaurant company that has been operating for ten years on the Gulf Coast. This company may have opened a number of new restaurant locations at varying points over its short history but also have been negatively impacted by several major hurricanes, as well as the BP oil spill. These factors could complicate the impact on the results observed in given years such that separating the effects of all of these impacts can be very difficult.

Caution in Interpreting Results

Several major warnings are in order when regression techniques are used in an active-passive analysis:

- 1. Regressions do not necessarily prove causality (i.e., a cause and effect relationship).** A relationship could have a high R square and also be shown to be statistically significant. Nonetheless, the result could be utterly meaningless and there may in fact be no casual relationship between the independent variable and dependent variable. This is why common sense has to play a role in assessing the results of statistical analysis.

ACTIVE/PASSIVE (continued)

2. Not all relationships are necessarily linear (or proportional) in nature. In these instances, the use of tools other than regression analysis may be necessary. Also, the previous example involved a simplistic example that included time series data. It may also be necessary to perform additional analysis when time series data is present.

3. The quality, quantity and reliability of the underlying data impacts the degree to which regression analysis can be used and whether or not it provides reliable results. As discussed previously, one potential problem with this technique is that there is often insufficient data to have a large enough sample to be able to effectively utilize regression analysis.

4. Qualitative, subjective factors are often critical. While it is appealing to have the simplicity of a math formula to predict changes in value, business appraisers must not lose sight that other non-quantitative measures and issues may be equally important.

5. Other passive forces may be present. As noted earlier with the dentist example, other passive forces may be present (i.e, changes in reimbursement rates, changes in capitalization rates, changes in valuation multiples).

Conclusion

The analysis of active and passive components of a change in company value is not a perfect science, however, it does not have to be the valuation voodoo

believed by many lawyers and judges. The relative lack of statutory and case law on this topic muddies the water and increases the anxiety for those attempting to determine such components of value, however, this area is not completely without useful tools. Regression analysis is not the final word on the division of active and passive components, however, it can be a powerful tool in identifying and quantifying the relationship between an external factor and a company's value. At the same time, practitioners must recognize the limitations of regression analysis and, at the end of the day, any conclusion in the active/passive analysis must comport with common sense. ♦

George B. Hawkins is co-author of the *CCH Business Valuation Guide* and a Managing Director of Banister Financial, Inc., a business valuation firm in Charlotte, North Carolina. He can be reached at ghawkins@businessvalue.com or 704-334-4932.

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